ACC.14
TCT@ACC-i2 | innovation in intervention

A546
JACC April 1, 2014
Volume 63, Issue 12

Congenital Heart Disease

OSTEOPOROSIS IS PREVALENT AND EXERCISE CAPACITY INDEPENDENTLY PREDICTS BONE MINERAL DENSITY IN MALE PATIENTS WITH ACUTE DECOMPENSATED HEART FAILURE

Poster Contributions
Hall C
Sunday, March 30, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Heart Failure and Cardiomyopathies: Challenge of Acute Decompensated Heart Failure
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
Presentation Number: 1186-188

Authors: *Jong-Chan Youn, Yumie Rhee, Jaewon Oh, Namki Hong, Sungha Park, Sang-Hak Lee, Donghoon Choi, Seok-Min Kang, Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, South Korea*

Background: Heart failure is associated with increased risk of osteoporosis. However, the prevalence and predictors of osteoporosis in patients with acute decompensated heart failure (ADHF) are not well investigated.

Methods: Fifty male patients with ADHF (60 ± 16 years, mean ejection fraction 28.0 ± 11.5%) were prospectively and consecutively enrolled. Quantitative CT scans for bone mineral density (BMD) as well as biochemical, echocardiographic and cardiopulmonary exercise tests were evaluated.

Results: Sixteen patients (32%) had osteopenia (volumetric lumbar BMD of 80-120 mg/cm3) and six patients (12%) had osteoporosis (BMD < 80 mg/cm3). C-telopeptide of type I collagen (0.564 ± 0.323 ng/mL) was within normal range, however osteocalcin (18.7 ± 23.2 ng/mL) and 25-hydroxyvitamin D (13.8 ± 7.0 ng/mL) were low, while parathyroid hormone (65.3 ± 41.0 pg/mL) was increased. Lumbar BMD was lower in ischemic patients than non-ischemic patients (107.9 mg/cm3 vs. 145.4 mg/cm3, p=0.005). When controlled for age, body mass index, N-terminal proBNP, etiology of heart failure, hemoglobin and thigh circumference, multivariate regression analysis revealed peak VO2 independently predicts lumbar BMD (β=0.448, p=0.031), hip total BMD (β=0.547, p=0.021), femur total cortical thickness (β=0.595, p=0.011) and femur neck cortical thickness (β=0.590, p=0.011).

Conclusion: Osteoporosis is more prevalent in ischemic patients and exercise capacity independently predicts BMD in patients with ADHF. These findings may explain the novel relationship between exercise capacity and BMD in ADHF patients.